U3D4 WS Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per \_\_\_\_\_\_\_\_\_

Describe in words how the parent function is moving.

1. F(x) = -2 (x+3)2 - 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. F(x) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. F(x) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

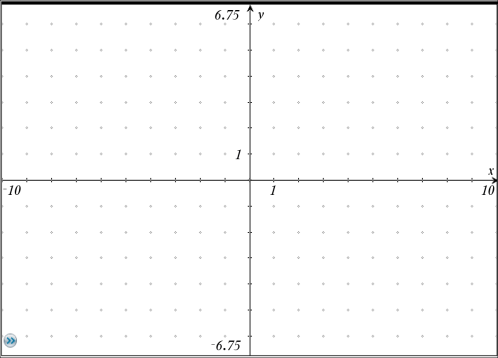
4. F(x) = (-( x+2))3- 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. F(x) = x + 7 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

State the parent function and graph the three critical points. Then with another color move the points according to the transformation and graph it.

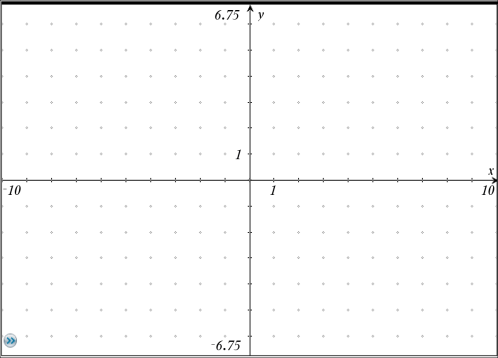
6. F(x) = 2(x + 3)2 +2 7. F(x) =-1 8. F(x) = 1

parent \_\_\_\_\_\_\_\_\_\_\_\_ parent \_\_\_\_\_\_\_\_\_\_\_\_ parent \_\_\_\_\_\_\_\_\_\_\_\_

9. F(x) =x3 + 2 10. F(x) = x -3 11. F(x) =-1

parent \_\_\_\_\_\_\_\_\_\_\_\_ parent \_\_\_\_\_\_\_\_\_\_\_\_ parent \_\_\_\_\_\_\_\_\_\_\_\_

Use the following description to write the equation with the transformations.

12. parent: f(x) = x2 13. parent: f(x) = 14. parent: f(x) = x3

left 3, up 7, right 2, up 1, down 1, reflect x-axis

reflect over the y-axis vertical stretch of 3 horizontal shrink of

15. parent: f(x) = 16. parent: f(x) = x2 17. parent: f(x) =

left 2, down 7, right 5, up 2, down 3, reflect y-axis

reflect over the x-axis horizontal stretch of 4 vertical shrink of